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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,875	10/04/2001	Torben E. Veng	2428	4833

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EXAMINER

KNAUSS, SCOTT A

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/971,875

Applicant(s)

VENG, TORBEN E.

Examiner

Scott A Knauss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-11 and 14-20, drawn to a method of splicing fibers and the transmission system thus formed, classified in class 385, subclass 98.
 - II. Claims 12 and 13, drawn to a splicer utilizing an electrical arc, classified in class 219, subclass 121.11.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process could be performed with a splicer other than the one set forth in claims 12 and 13.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Peter Priest on 7/25/03 a provisional election was made without traverse to prosecute the invention of group I, claims 1-11 and 14-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12 and 13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

2. The references cited in the information disclosure statement have been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 06-174961 (Hamada et al)

Regarding claims 1 and 14, Hamada discloses a splicing method and resulting splice for optical fibers in figs. 1 and 2, comprising:

Generating an electric arc from an arc (discharge) current, the current having a level and duration sufficient to produce an electric arc with an intensity and duration sufficient to achieve a desired splicing temperature at a splice point between a pair of optical fibers #2 positioned within the arc.

Using the arc to splice the fibers;

Ramping the level of the arc current downward over time (see fig. 2, abstract), creating a downward ramp in temperature, reducing heat distortion (see translation, [0006]) which would inherently reduce the amount of splice loss, thus a downward ramp is provided which inherently has a shape to reduce splice loss.

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5. Claims 14-16, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 08-190030 (Sugizaki et al)

Regarding claims 14-20 applicant is claiming the product including the process of splicing a series of optical fibers, and therefore are of a "product-by-process" nature. The courts have been holding for quite some time that: the determination of the patentability of product-process claim is based on the product itself rather than on the process by which the product is made. In re Thrope, 777 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985); and patentability of a claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious. Applicant has chosen to claim the invention in the product form. Thus, a prior art product which possesses the claimed product characteristics can anticipate or render obvious the claimed subject matter regardless of the manner in which it is fabricated. A rejection based on 35 U.S.C. section 102 or alternatively on 35 U.S.C. section 103 of the status is eminently fair and acceptable. In re Brown and Saffer, 173 USPQ 685 and 688; In re Pilkington, 162 USPQ 147.

As such, no weight is given to the process steps recited in claim 14-20, and thus claims 14-16, 19 and 20 are anticipated by Sugizaki, since the process steps carry no patentable weight.

Regarding claim 14 Sugizaki discloses a first fiber #1 spliced (welded) to a second fiber #3 at a splice point #4.

Regarding claim 15 a first fiber #1 is a DCF.

Regarding claim 16, the second fiber #3 is a bridge fiber.

Regarding claims 19 and 20 Sugizaki discloses a first, DCF fiber #1 spliced to a first end of a bridge fiber #3 at a first splice point #4 and a second optical fiber #2 spliced to a second end of the bridge fiber at a second splice point #5.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2,3,6,7,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al

Regarding claims 2 and 3 Hamada discloses that the arc current is controlled by a circuit which can continuously change the discharge current, thus acting as an arc current controller. However, Hamada does not explicitly state that the ramping is performed automatically, by the controller, or that the controller is programmed to produce the downward ramp at the splice point.

Nevertheless, it would have been obvious to of ordinary skill in the art to automate that downward ramping since it would enable more precise control of the ramping process to provide the controlled ramp showed in fig. 2. Furthermore, it has been held that broadly providing an automatic means to replace manual activity which accomplishes the same result involves only routine skill in the art (In re Venner, 120 USPQ 192).

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Regarding claim 3, Hamada further does not explicitly disclose that the circuit is programmed to create a downward ramp in temperature.

Nevertheless, programmable circuits are well known, and it would have been obvious to one of ordinary skill in the art to use such a circuit, because it would enable easy control and adjustment of the downward ramp shown in fig. 2 to produce a high strength splice which would have low loss.

Regarding claims 6,7,17 and 18, Hamada does not specify the types of fibers to be spliced, in particular, the first and/or second fibers being inverse dispersion fiber.

However, such fibers are well known in the art and are used to provide compensation of dispersion in optical transmission systems. It would have been obvious to one of ordinary skill in the art to splice two such fibers together in order to provide an increased amount of dispersion compensation in a fiber transmission system.

8. Claims 1,4,5,8-11,14-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,933,561 (Sugizaki) in view of Hamada.

Regarding claims 1,4,5,8,9,14-16,19 and 20 Sugizaki discloses a method of reducing connection loss between a first, dispersion compensating fiber #2 and a second, single mode fiber (SMF) #4 using a bridge fiber #3, and discloses the use of fusion splicing to connect the fibers (see col. 3, lines 14-39).

Sugizaki does not, however, disclose the use of a method as set forth in claim 1 to splice together the first fiber #2 to bridge fiber #3, and bridge fiber #3 to fiber #4, i.e. (a) generating an electric arc from an arc current, the arc current having a level and

duration sufficient to produce an electric arc with an intensity and duration sufficient to achieve a desired splicing temperature at a splice point between a first optical fiber and a second optical fiber positioned within the electric arc; (b) using the electric arc to splice together the first and second optical fibers; and (c) ramping the level of the arc current downward over time, thereby creating a downward ramp in temperature at the splice point from the splicing temperature to a cooler temperature, the downward ramp in temperature being shaped to reduce splice loss.

Such method is, however disclosed by Hamada et al, as discussed above, in which an arc discharge is generated by a discharge current to fusion splice two fibers together, the current being ramped down over time, resulting in a splice which has higher strength and which would inherently have lower splice loss.

Therefore it would have been obvious to one of ordinary skill in the art to use the fusion splicing method of Hamada to fusion splice the first (#2) and bridge (#3) fibers of Sugizaki, which would then be removed so that that the bridge (#3) and second (#4) fibers could then be spliced. Such a splicing method would be advantageous to be used in the fusion splicing of the fibers of Sugizaki in order to provide high strength splices which would inherently have lower splice loss.

Regarding claims 10 and 11, Sugizaki, as modified, fails to disclose splicing a first, inverse dispersion fiber (IDF) to the bridge fiber, or splicing first and second IDF's via a bridge fiber.

Nevertheless, Sugizaki discloses a method of connecting two fibers of dissimilar core sizes to reduce connection loss, and it would have been obvious to one of ordinary

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skill in the art to use the method of Sugizaki to connect any two different sized fibers for the purpose of reducing connection loss. In particular, it would have been obvious to one of ordinary skill in the art to use the method of Sugizaki to splice together two IDF's having dissimilar core size for the purpose of providing additional amounts of dispersion compensation in a fiber transmission system.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2002/0057877 (Sasaoka et al) discloses another method of splicing optical fibers of dissimilar core sizes, as do US 6,439,782 (Otani et al) and US 2002/0031292 (Dyott et al)

US 6,097,426 (Esmaeli), 5,648,007 (Reslinger et al), US 5,218,184 (Hakoun et al) and US 4,383,844 (Kashima et al) each disclose method of controlling the current to arc electrodes to effect fusion splicing.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Knauss whose telephone number is (703) 305-5043. The examiner can normally be reached on 9-6 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308 - 4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Scott Knauss

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sak
July 28, 2003



HEMANG SANGHAVI
PRIMARY EXAMINER